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ABSTRACT

The responses of six medical technologists to an interviewer's questions give a view of the working life in the clinical pathology laboratory of the National Institutes of Health (NIH). The technologists cite the competence of co-workers, sophisticated equipment, opportunities to further their education, and the challenge of participation in research as special benefits of working at NIH. High pay and many fringe benefits are mentioned as appealing, and the social and cultural attractions of Washington, D. C. are discussed. Each of the technologists questioned explains some technical aspects of her work, discusses her educational background, and reveals some goals for her future. (AJ)

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Opportunities for Medical Technologists Clinical Center. National Institutes of Health

Challenging and rewarding opportunities are available for qualified graduates in Medical Technology in the Clinical Pathology Department of the Clinical Center, National Institutes of Health. Here, one participates in medical care and scientific medical research in one of the world's largest and most advanced centers for the conquest of disease. NIH is the principal research bureau of the Public Health Service, a component of the U.S. Department of Health, Education, and Welfare.

The Clinical Center is a 500-bed research hospital which provides the most modern patient care facilities for the medical research programs of the Institutes. Here, medical technologists learn to use advanced techniques of instrumentation and computer-assisted automatic data processing to provide laboratory tests vital to the care of patients and to clinical research studies. The department is organized into four units: Clinical Chemistry, Hematology, and Infections Laboratory Services and the Research and Developmental Section. The medical and scientific staff are leaders in the forefront of clinical pathology and active research in laboratory medicine.

We asked a writer to visit our department. He interviewed five medical technologists and a former technician who is now a microbiologist. Their answers to his questions also will answer your questions about the day-to-day satisfactions and the special opportunities enjoyed by our staff at the Clinical Center.

If as a student, a recent graduate, or experienced medical technologist, you are interested in these challenges and opportunities, please send the attached post card for more detailed information and application forms.

James D. MacLowry, M.D.
Chief, Clinical Pathology Department
Clinical Center

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For Medical Technologists:

The Frontier of Clinical Pathology

Six interviews conducted at the National Institutes of Health

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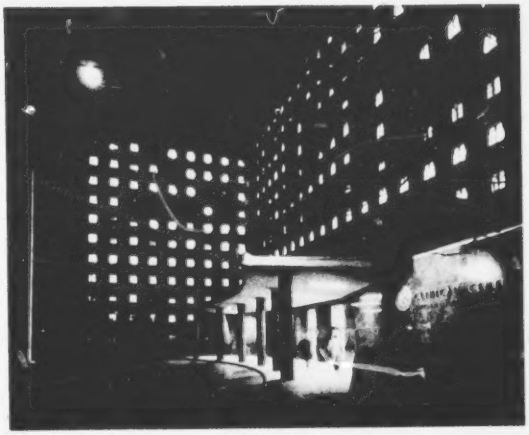


The Clinical Center is the 14-story research hospital of NIH, located at Bethesda, Md., a few miles from Washington, D.C.

"Intelligent practice makes perfect"

This interview was conducted with a medical technologist who was born in Wheeling, W. Va., studied premedical technology at West Liberty, W. Va., State College, and received her MT (ASCP) after further study at William Singer Research Laboratory, Pittsburgh, Pa. She was a teaching supervisor at Ohio Valley General Hospital in West Virginia before joining NIH. Present duty: Supervisory Technologist, Infections Laboratory Services.

Q. Are there a large number of vacant positions for medical technologists in Infections Laboratory Services?

A. There aren't a large number at any one time. But positions are constantly opening up and being filled with new people. Technologists get married and start families. Or else their husbands are transferred. The Washington area is a transient one.

Q. You have been at NIH only 2½ years. You've been promoted fast.

A. I've been fortunate.

Q. What do you do in the Main Lab?

A. Urine, throat, sputum, spinal fluid, and wound cultures. These are all planted in the Main Lab and are divided among four technologists the next day. They identify the organisms. I check all the reports that go out to see that there are no obvious errors. I handle personnel scheduling too. I also teach the young physicians—the residents—who rotate through here, and the new technologists; you know, help them with bench work.

Q. What do you teach the residents?

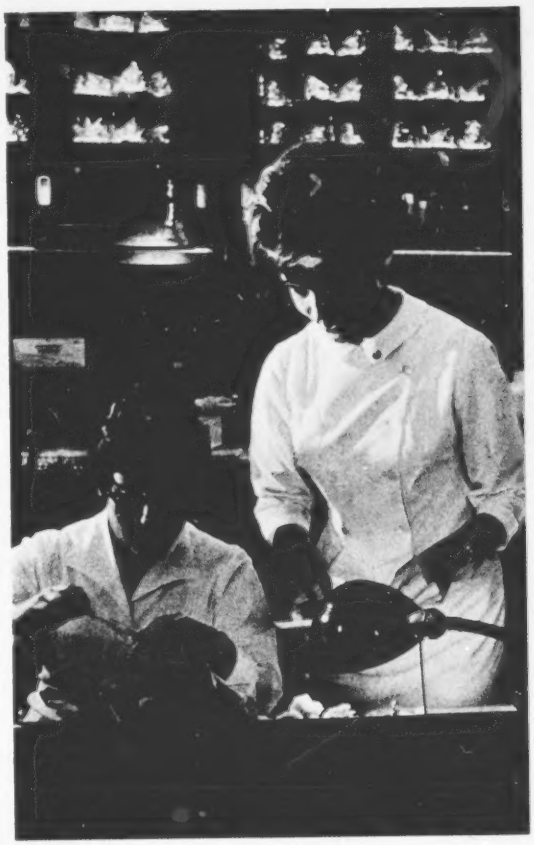
A. Identification of bacteria by microscopic and chemical methods, and cultural characteristics. The residents spend 3 months in each of the three Clinical Pathology services, and 3 months in the Blood Bank.

Q. Do all new technologists rotate?

A. Yes. Each works 4 months in the Main Lab, 4 months in Mycology, 2 months in Serology, 2 months in Enterics, and 1 month each in Sensitivities, Blood Cultures, and TB.

Q. Is the equipment that you have here comparable to that in medical technology schools?

A. It's about the same as in the larger university schools. We have a greater quantity of media to work with and more types than you



Supervisor observes as medical technologist plants a throat culture.

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would ordinarily find. The research that's going on all the time here helps a lot. For example, our people ran a study on 11 years' experience with various types of media. Identification is very precise here. We have a full range of antisera for speciation of salmonella. We have now started fluorescent microscopy in TB and serology. That speeds up reporting.

Q. Have you been able to find time for more formal education?

A. I looked over the courses offered by the nearby universities. However, I decided on study offered here at NIH in the evenings by the Foundation for Advanced Education in the Sciences. I took Organic Chemistry and will take Immunology this year.

Q. Where do you live?

A. I share a one-bedroom apartment with a nurse, who's my age, in Bethesda. It's about 10 minutes from work. The apartment is air conditioned and has a dishwasher and garbage disposal, and an outside swimming pool.

Q. What is the rent?

A. Including all utilities, $141 a month. One bedroom apartments in this area start at about $125. Incidentally, so many people move to the Washington area from other places that many social events are planned to help them find new friends. Even the apartment managements have joined in. Our management sponsors dances and poolside parties.

Q. Who arranges the other social events that you spoke of?

A. We have every kind of club you can think of in the area—ski clubs, tennis clubs. There are several College Graduate Clubs. Each sponsors a social event once a week, or perhaps once a month. I met my fiance at a College Graduate Club.

Q. Do you think the words "National Institutes of Health" on your record will help you if you ever decide to look for another job?

A. Of course. It isn't just the words, though. The people in Clinical Path are really qualified, and it rubs off on anybody working with them. You've heard that "practice makes perfect." That isn't really true. *Intelligent* practice makes perfect. I've had some other job offers. I like the Washington area, though. It offers just about everything.

Q. People say that, and then they don't take advantage of all it offers.

A. I don't have time to do all I'd like to do. I do get to Arena Stage productions and some of the free concerts at the National Gallery of Art, and during the summer I go to productions at the Shady Grove Music Theater and Carter Barron Amphitheater.

Q. What was your favorite play?

A. *The Crucible*. It was at the Arena Stage. It was about the Salem witch hunts. I had been interested in the McCarthy era and thought the play was an interesting parallel.

Q. What was your favorite concert?

A. The Philadelphia Symphony. Arthur Fiedler was guest conductor.

Q. In Washington?

A. In Philadelphia. It only took 3 hours to drive from home to the door of the concert hall.

Q. After a few years in a profession, lots of people feel they're in a rut. How do you feel about medical technology?

A. I haven't found any rut. I really feel I chose the right profession.

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"I had no idea of the research that is going on"

This staff member is a medical technologist who was born in Baltimore and lived there until the age of 11, when her family moved to Washington, D.C. She received her B.A. degree in biology from D'Youville College, Buffalo, N.Y., and worked as a medical technician for a year at Washington Hospital Center before joining NIH. She is in the Hematology Service.

Coulter Counter for counting platelets is mounted atop console that is connected to computer. Technologist punches "send" button to send count to computer for computation. In background, staff physician and a medical technologist discuss platelet dilutions.

Q. How long have you worked at the Clinical Center?

A. Six months. I am rotating among the various hematology labs. In fact, in the Hematology Service all the technologists except the supervisors rotate. We're generally not in the same room more than 2 months in a row.

Q. What's the theory of that?

A. You don't get bored and you keep proficient in all the tasks. I am in the Automation Lab at present. We run platelet counts, red cell indices, white counts, hemoglobins, eosinophil counts, sickle cell preparations, and sed rates.

Q. Do you do all these?

A. Yes.

Q. Tell me about one of them.

A. We do the platelet count rather differently than most people. We put anticoagulated blood in a nid (a small platelet sedimentation tube) and let it settle for not less than 10 minutes. We pipette 3 lambda of plasma off the top and put it into 9 cc's of K-oxalate, and mix. Then we run the mixture through the Coulter Counter. The counter is connected to a console that looks like a typewriter keyboard. The count shows up both on the counter and on the console. That's the raw platelet count. If we are satisfied with the count, we press a "send" button on the console to send it to the computer. We multiply by a couple of factors to get the count per cubic millimeter. We work from charts which take into consideration the hemoglobin or hematocrit. Also we figure in a coincidence factor. That's to take care of the situation when more than one platelet feeds past the orifice in the counter at the same time. While we are figuring this, the computer is doing the same thing automatically and is storing the information for later print-out.

Q. In effect, that procedure means you are checking up on everything the computer does.

A. That's right. Nobody takes any chances here. I'd say the computer process is in the advanced development stage.

Q. Do you think automation plus the use of the computer is going to revolutionize laboratory medicine?

A. I haven't been here long enough to know. I could certainly see it in use in national medical centers or in a large servicing lab tied to several general hospitals. Also, I could see it as enabling us to make more use of laboratory assistants. They could run the machines, and the technologists would have more time for sophisticated work, such as reading bone marrows, or special hemoglobin tests, or using special staining techniques.

Q. Where do you live?

A. In a one-bedroom apartment in the Columbia Heights section of Washington. My parents live in Chevy Chase.

Q. You live a little farther away than another technologist I talked to.

A. It takes about an hour to ride to NIH by bus. I'm planning to buy a car. That will cut it down to 20 minutes, even in the rush hours.

Q. Would you advise other technologists to come here?

A. Yes. The opportunity for learning is fantastic. I'm not talking just about our procedures in Clinical Pathology. I'm speaking also of the other projects being studied at NIH, the different diseases, the equipment here, the seminars, the guest lectures. Plus, there's a social aspect. We have a few patients from South America, Africa, Europe. I get to meet them because we take turns in going out on bone marrows, finger sticks, and occasionally drawing blood. And then there's no city in the world that has as many cultural advantages as Washington. We have many agencies that have movies, concerts, demonstration lectures, recreation programs, and art shows, and nearly all the lectures and concerts are free, especially in the summer.

Q. Is it difficult for a technologist to get a job here?

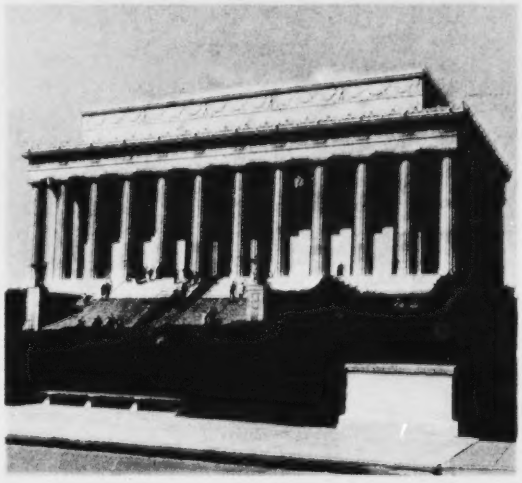
A. I didn't find it so, and I don't think I had any special qualifications. No one should hesitate to apply. It's quite informal. The doctor who heads Hematology spent several hours with me on the day of my interview. He took me around to all the labs.

Q. Did the informality of the department surprise you?

A. I've found that most competent places are informal. However, other things did surprise me. I had lived here in Washington nearly all my life, but I had never been to NIH. I knew the reason for NIH and that nearly everything under the sun was being studied here, but I thought the clinical laboratory would be the same as in a general hospital. I had no idea of the research that is going on in this department—with the computer, for example.

Q. Are you taking any evening courses here?

A. I'm taking Bacteriology, and Fundamentals of Music for Listeners. That last is for personal pleasure, of course. It's being taught by a physician who also has his Ph. D. degree in music. I hope you'll tell other people how much there is to learn here.



The Lincoln Memorial is a "must-see" attraction in Washington.

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"People at NIH take an amazing number of courses"

The person interviewed here is a microbiologist in his forties. Born in Pittsburgh, he received his B.S. degree at Penn State University and his M.S. degree at the University of Michigan. He is in charge of one of the laboratories of the Infections Laboratory Services.

Two microbiologists discuss a microscopic examination during which Pneumocystis carinii, a rare pathogen, was found. Fluorescent microscope at left has proven to be versatile and therefore valuable instrument.

Q. Doctor, when did you join NIH and what was your position at that time?

A. Eleven years ago. I was a medical technician.

Q. Did you already have your master's degree?

A. Yes. That was before the present-day distinction between technicians and technologists was made.

Q. When did you start work on your Ph. D. degree?

A. Seven years ago.

Q. And you received the degree this year?

A. Yes. I completed 50 semester hours. It wouldn't have taken so long, but the university kept adding requisites as I went along. Also, it took some time to put the dissertation together. It was on the iridescent phenomenon, dissociation, and bacteriophage action in *Pseudomonas aeruginosa*.

Q. This was all at evening school, at George Washington University?

A. Most of it was in the evening. I took some courses during the day. The policy here is that you can go to school during the day and make up the hours during evenings and weekends.

Q. Did your experience in working at the Clinical Center make your studies and your dissertation any easier?

A. They fitted right in with the type of work I was doing here. Also, we have a Clinical Pathology Department library here on the floor. It has texts directly applicable to our field and receives a number of journals.

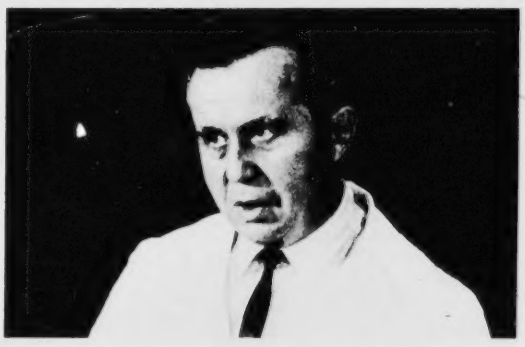
Q. Is a person who works as a medical technologist or technician here at the Clinical Center likely to have the jump on others, so that he or she will find formal education to be easier?

A. Certainly we have superior facilities for learning and advancing. But it depends on the person. It depends on the drive he or she has.

Q. Did the Government pay any part of your educational expenses?

A. I started on my own, and then the Government became more liberal in payment of fees for tuition and books. I availed myself of this during my last semesters. But nobody should assume that just because he wants a certain degree, the Government will pay the bill. The Government is interested in seeing that its employees advance in their skills, not just in helping them get degrees.

Q. In other words, if I were a medical technologist and wanted to get a degree in law, the Government wouldn't help?



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A. That's right; the education must be related to the job that the person holds. Ordinarily, you must have worked for a year before the Government will pay for training. Under certain circumstances a waiver can be granted earlier than a year. Another thing—the money must be available. People tend to forget that; they think the Government has unlimited funds. With all these considerations, however, people at NIH take an amazing number of formal education courses. Last year, in the Clinical Pathology Department alone, our personnel took 40 courses.

Q. Has your study been difficult?

A. It's tough going to school part time, holding down a full-time job, and raising a family. It takes a big effort.

Q. Part of that must have been due to the fact that it takes about 30 minutes to drive downtown to George Washington University. We have the Foundation for Advanced Education in the Sciences right here on NIH grounds. It offers evening courses, Mondays through Thursdays.

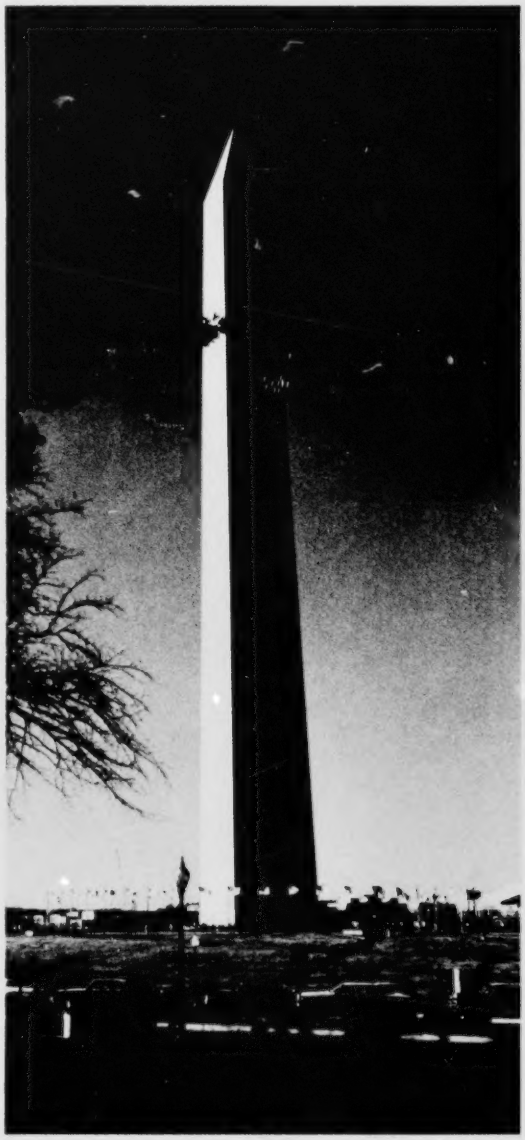
A. Right. And the faculty is outstanding. They are mostly NIH scientists, who are real experts in their fields. Many are nationally or internationally famous. The Foundation doesn't offer degree programs. Advance arrangements can be made with some of the local institutions of higher learning whereby these institutions will accept these courses toward degrees.

Q. Is the Washington area a true educational center?

A. I read in the newspaper the other day that we have 23 institutions of higher learning here. Six of these are universities. Education in the evening is an established thing. Some schools have more evening students than day students. Whatever your age or interest, you'll be going to school with dozens of others of the same age and the same interests. It's quite provocative and interesting to be with them.

Q. I thought you said it was tough in your case.

A. It was that, all right. But it was stimulating too.



From the top of Washington Monument, one commands a fabulous view of the Nation's Capital, the Potomac River, and the surrounding Maryland and Virginia countryside.

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"We need people who are competent"

This interview was conducted with a medical technologist who was born in Reidsville, N.C., grew up in Norfolk, Va., earned a B.S. in biology at Virginia State College, Petersburg, Va., and became a MT (ASCP) after further study in Norfolk General Hospital Medical Technology School. She worked at that hospital for a year before joining the Clinical Center's Clinical Pathology Department. Present position: Supervisor, Hematological Morphology, Hematology Service.

Staff physician (background), resident, and medical technologist (looking into microscope) discuss a bone marrow slide.

Q. Tell me how long you've been here at NIH and what you do.

A. I've been here 3 years. We do differential blood smears and special stains. Also bone marrows and fluids, such as spinal, joint, and ascitic fluids. I supervise six to seven girls.

Q. Are you married?

A. Yes, to a biochemist that I met at NIH. I came here in June; we met in October; we were married the next January. My husband worked for the National Heart Institute at NIH and now works for the national headquarters of the American Red Cross. He is involved in research on the preservation of blood components and other methods of stretching the national supply of blood. We have an 8-months-old boy.

Q. Where do you live?

A. We have a three-bedroom rambler in Silver Spring, Maryland, about a 15-minute drive from NIH.

Q. Are you involved with the computer in this lab?

A. We'll be doing differentials by means of the computer shortly. We do have a good deal of automated equipment. We have an Ames Hema-Tek slide stainer on which we stain peripheral blood smears, bone marrows, and L.E. preparations. We also stain our fluid smears.

Q. Is that stainer found in most laboratories?

A. It is the only one at NIH, I believe. It's fairly new. We also have a Shandon Cytocentrifuge. It centrifuges the fluids and puts the cells on the slides simultaneously. It takes less time; we get a better preparation; and it takes less

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manipulation of the microscope to find a random sample of cells.

Q. I assume you've had offers of positions elsewhere?

A. Yes, indirectly.

Q. Why have you stuck here?

A. I'm learning things I wouldn't learn in other places. The chiefs around here have a wealth of knowledge. Also, we are exposed to such a diversity of patients. We see blood dyscrasias that we wouldn't see elsewhere. I like the area and the people with whom I work.

Q. What do you hope to learn in the future?

A. I'm taking an evening course here at NIH on Histochemical and Cytochemical Methods. I want to learn electron microscopy too. I'll have an opportunity to do that here, on the job, I believe. Incidentally, the MT's here are reading bone marrows in conjunction with the clinical residents. That's something special. In other places they would do the staining preparation and that would be the end of it.

Q. Tell me more about that.

A. We technologists and the residents work closely together, reading the bone marrows, discussing them, evaluating them, writing them up. Then we take them to a pathologist for final evaluation.

Q. You appear to be proud of that.

A. I am. We have quite a few patients with leukemia or Hodgkin's disease and some with fairly rare conditions such as Niemann-Pick disease. In order to see changes in the bone marrow, you have to learn a lot about cell development and the reaction to chemotherapy. I'm glad to have opportunity to acquire the knowledge. If I had to go somewhere to get another job, I think a doctor would be very, very impressed to have a medical technologist having the knowledge of how important a bone marrow really is.

Q. Do you make use of medical technicians as well as medical technologists?

A. Yes. We have suitable positions for both. They work side by side.

Q. Are clinical laboratories so short of MT's that they'll take anybody who can breathe?

A. That isn't true here at the Clinical Center. We have a load to share. We can't carry the incompetent. We don't have time to lead people by the hand. We need people who are able and willing to make decisions and are competent to make good judgments.

Cars cannot intrude on Roosevelt Island. This nature sanctuary on the Potomac River is connected by a footpath to the Virginia shore, where a large area is reserved for parking.

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"People are compatible"

The staff member interviewed here is a medical technologist, MT (ASCP), who was born in Fort Lauderdale, Fla., and as the daughter of a Naval officer, lived successively in California, Iowa, Florida, Panama, Tennessee, New Jersey, Virginia (in a suburb of Washington, D.C.), Kansas, and Hawaii. She attended Mary Washington College, Fredericksburg, Va., and received her B.S. degree in medical technology from the Medical College of Virginia, Richmond. Present assignment: Clinical Chemistry Service. She has been at the Clinical Center for 1 year.

Technologist starts sample pump on Auto-analyzer to measure total protein and albumin.

Q. You've lived in a lot of places, and yet you came back to the Washington area. Does that mean it's the favorite among all the places you've lived?

A. It means that I like the Washington area. I couldn't say that it's the best of all those places. I was small when I lived in some of them, and I don't remember enough about them to compare them.

Q. Where do you live?

A. In Georgetown.

Q. That's supposed to be Washington's best address. It must be expensive, and it's 8 or 9 miles away.

A. A lot of girls who work at NIH live there. Car pools are easy to work up. I live in a renovated house, with five other girls. It has seven bedrooms and four baths, and each girl pays $75 a month rent and about $15 a month for utilities. Georgetown is a fun place to live. It has a unique atmosphere. It's full of young people, and yet you're likely to have a Senator living across the street or down the block.

Q. I've talked with several girls here in Clinical Pathology, and they're all leading active social lives. So apparently enough eligible men live here. Yet, I've always heard that women outnumber men in the Washington area.

A. A theory has been propagated by friends of mine that the over-abundance exists in 17-to-19-year-old secretaries and in mature career women, and that actually it doesn't hold for the 20-to-30-year-old age group of single, college women. I came up here from Richmond with another technologist. She got married within 6 months. Anyway, men certainly aren't in short supply in Washington.

Q. What do you think of pay scales for technologists at NIH? You're a GS-7, right?

A. Yes. Without experience, a technologist starts as a GS-5. One year's experience, and she usually jumps to a GS-7. That's about a $1,200 pay increase in 1 year. I don't think you'll find many other places that offer a raise of that magnitude. But the question of pay is one of the hardest ones to answer, because there are so many things to consider. I read the journal that we medical technologists get, and the pay in other places looks good.

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Q. What about fringe benefits?

A. Of course, the Federal Government has always had the reputation of being a first-class employer. Take leave: new employees get 13 workdays a year as leave—that's a little over 2½ weeks—and another 8 days as Government holidays. Personnel people say that fringe benefits raise your pay by 20 percent or more a year. That includes annual leave, sick leave, contributions to your retirement and your medical insurance, and so on. I think private employers are catching up fast with the Government in fringe benefits. At the same time, the Government has shown itself to be awfully sensitive to reports that some people in private industry draw more pay than in Federal Government work. Congress appears to be determined to make sure that we get at least equal pay. Pay raises come along every year. They are in addition to the automatic "step" raises that every Government worker gets.

Q. Your next promotion would be to GS–9?

A. Yes. That would be another $1,300 raise. That's usually for supervisors.

Q. I've talked to a couple of supervisors who made it fast.

A. It depends on lots of things: the ratio of Chiefs to Indians, the turnover rate, and so on. By the way, we were talking about fringe benefits—one of these at NIH is free parking. I almost took a position in New York, and I'm sort of glad now that I didn't. I couldn't see myself living in the midst of all those millions of people, without being able to have a car. In Richmond, parking was $10 a month, and you had to wait 4 months to get on the list, and until then you rode the bus.

Q. What work are you doing now?

A. In Chemistry, we rotate among the labs. I'm in proteins now. We do total proteins and albumins, bilirubins, BSP, thymol turbidity, cholesterols, alpha-amino nitrogens, spinal fluid proteins, and several others.

Q. Do you use automatic analyzers?

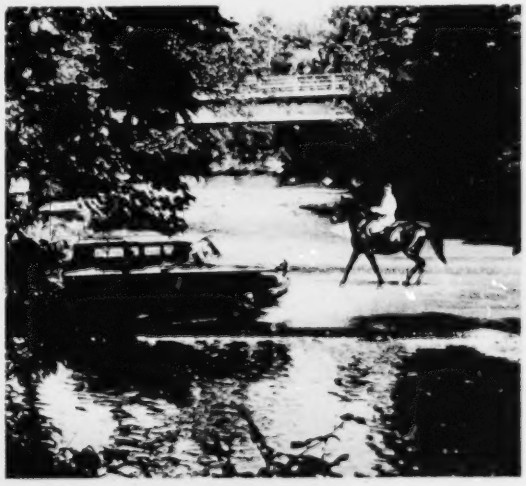
A. Just for total proteins and albumins. This is one of the few labs in which we do mostly manual tests. The amount of automation we have here is really striking. You come here, and find that there are three Auto-analyzers in every room. I talked to one girl; she came from a place where they had only one Auto-analyzer in the whole place, and she said she would have been scared if she had known about all the machinery here. She became accustomed to it, just as everyone else does.

Q. What do you think of working conditions at the Clinical Center?

A. I like it here. People are easy to get along with. They are compatible. And then, too, everyone is highly qualified. They know what they are doing. You don't have to spend time reiterating to people what they are supposed to be doing. You have the feeling that everybody you are working with is competent.

Q. I get the impression that you think intelligent people are fun to be with.

A. Yes. Don't you think so too?



Rock Creek Park is maintained in its natural beauty, although surrounded by a busy city. This has been a favorite strolling place for several Presidents. The National Zoological Park, which occupies a portion of the park, is world famous for its collection of animal life.

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"The frontier of clinical laboratory medicine"

This medical technologist, MT (ASCP), was born in Sharon, Penna., attended Madison College, Harrisonburg, Va., and then the Medical College of Virginia, Richmond, where she received her B.S. degree in medical technology. She came directly from college to the Clinical Center, where she has been for 4 years. Present position: Group leader, Enzyme Laboratory, Chemistry Service.

Readings, made by enzyme analyzer, of optical density of blood serum and reagent appear on strip chart held by technologist and are at same time fed to computer. Here, a resident and the technologist discuss speed and accuracy of the analyzer/computer combination.

Q. In talking to others here, I've learned that the Clinical Pathology Department expects its technologists to be highly qualified, that they routinely do tests that are not done except in larger laboratories, and that they deal with sophisticated machinery. Does a technologist have to have a great amount of experience when she comes here?

A. We would welcome anybody with wide experience. But mainly, I think, we're looking for technologists who have learned good laboratory techniques. We aren't worried if a new technologist, for example, has never operated

an Auto-analyzer or hasn't routinely done ketosteroids. In Chemistry, our people take a good laboratory worker who has had limited experience, and in 6 to 9 months they train her to be first-rate.

Q. Does the training continue after that initial period?

A. It never stops. We have bi-weekly conferences in Chemistry. Say we've gotten an abnormal value in the lab. The chiefs ask a resident to run up the patient's case history, including the types of drugs being used and his response to the treatment. The resident presents this at a conference to show the cause of the unusual value. That puts it in perspective. Also, we group leaders have regular meetings to formulate our goals. Then the entire Department sponsors monthly meetings to teach disease states to technologists. Cases of patients with unusual problems are presented, and correlation is made with lab data.

Q. Where do you and your husband live?

A. In an apartment development in Bethesda, Maryland.

Q. What does he do?

A. He is a staff assistant for the Committee on Appropriations of the House of Representatives. He is a budget analyst.

Q. Do you have any hobbies?

A. I knit and sew, and go swimming. We have a swimming pool at the apartment. But lately we have spent a lot of time looking at houses.

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Q. Do you like the Washington area?

A. Yes. There's so much to do here. Even if you don't take advantage of it, it's there. I think it's pretty around here too. The Bay. Great Falls. Rock Creek Park.

Q. Did you meet the President when he came to see the new automatic enzyme analyzer in your lab?

A. Yes. We spoke to each other.

Q. Does the machine excite much interest?

A. It's getting to be well known, since it's the only one of its kind in the world. A camera crew from the CBS Twenty-First Century program was here making a color television program. Quite a few scientists, hospital administrators, and computer people come to see it. Many visitors are from foreign countries.

Great Falls of the Potomac is a favorite outing place for couples or families. This view was taken from the Maryland side. On the far side of the river are the Virginia bluffs.

Q. Do they understand it?

A. I'm sure they do, although sometimes I can't understand *them*. But the analyzer is based on known principles.

Q. Tell me about it.

A. Say you're measuring SGOT activity. The analyzer automatically mixes blood serum and reagents and measures the density of the solution 13 times. The computer determines the rate of the reaction, which indicates the amount of SGOT activity in the blood. Five to ten times more tests per hour can be performed than could be done by hand and with an improvement in accuracy of about ten-fold.

Q. What tests will the machine perform?

A. SGOT, SGPT, and LDH. We're working on a fourth one, HBD.

Q. Has it taken over these various tests, so that you don't have to do them yourself?

A. Oh, no. We still draw the slopes. This is a research project, and we won't put it on its own until it's perfected.

Q. Are you helping in the research?

A. Yes. For example, we're trying the Wacker method for LDH's. It's a reverse reaction from the DPNH reduction method that we use now. Instead of a decrease in optical density, we get an increase after adding the reagent.

Q. Are you technologists really research assistants?

A. We really are. Most of our routine work is in the mornings. In the afternoons, each person in our particular lab has a research project to work on.

Q. Have you worked on anything that you are especially proud of?

A. I did glucose oxidase tests on urine to help determine normal urinary glucose values. Nobody had really defined them. The doctors are preparing a paper on this. I was the research assistant. That isn't unusual, though. Two other girls worked on setting up a method for T–3's.

Q. And right now you're primarily concerned with perfecting the automatic enzyme analyzer?

A. I'm helping. I don't want to give you the impression that I'm the main person. The analyzer was brought in here after 2½ years of research and development by some of our top people in Clinical Pathology. I'll have a real sense of achievement when the programs are completed and fully tested. I would tell other technologists that if they come to NIH, they'll be working on the frontier of clinical laboratory medicine. It's true.

American University is closest to NIH of the six universities in the Washington area. This scene was taken on the main campus; the university also maintains a downtown campus in Washington.

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